

# Practical and Proactive SSO Prevention

## *Lessons Learned: Case Studies*

March 9, 2004

*Presented at CWEA Specialty 1-Day Conference  
at Elsinore Valley MWD*

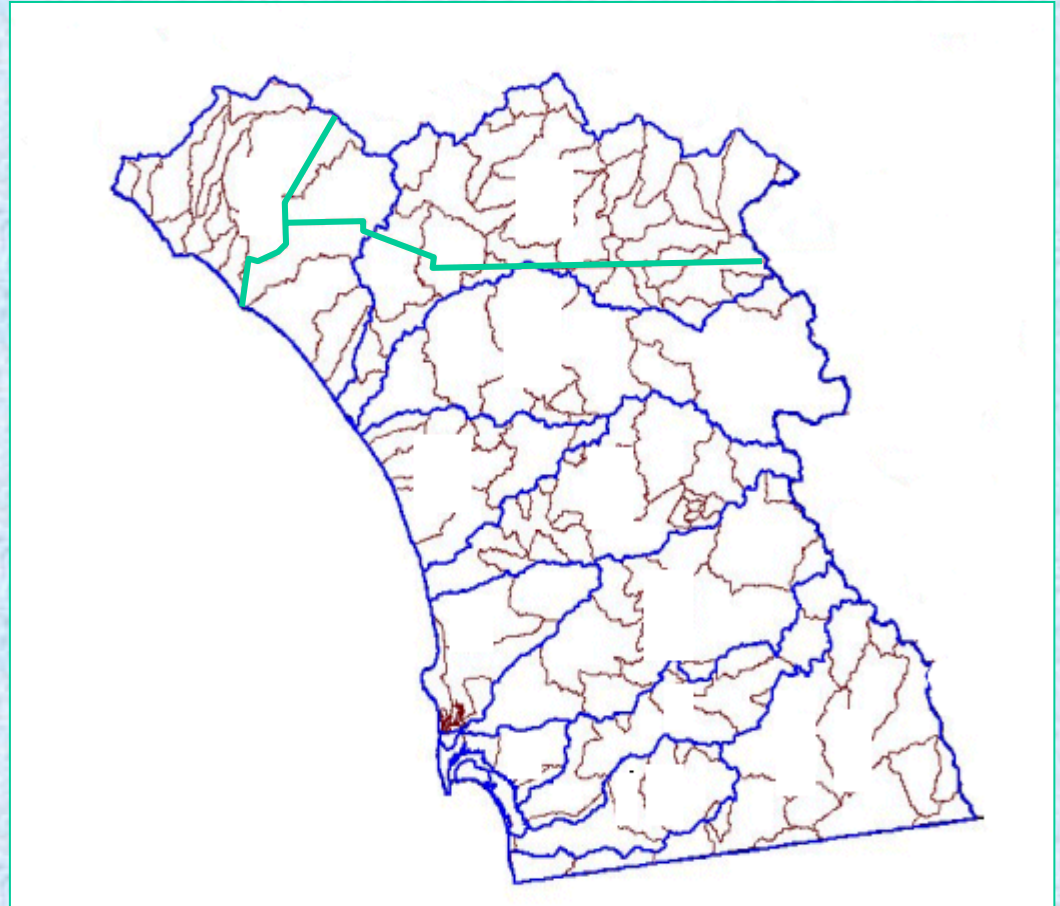
**Victor Vasquez**

*Regional Water Quality Control Board  
San Diego Region*

# Regional Water Quality Control Board San Diego Region

## *Mission Statement*

*Our mission is to preserve  
and enhance the quality of  
California's water  
resources and ensure their  
proper allocation and  
efficient use for the benefit  
of present and future  
generations.*

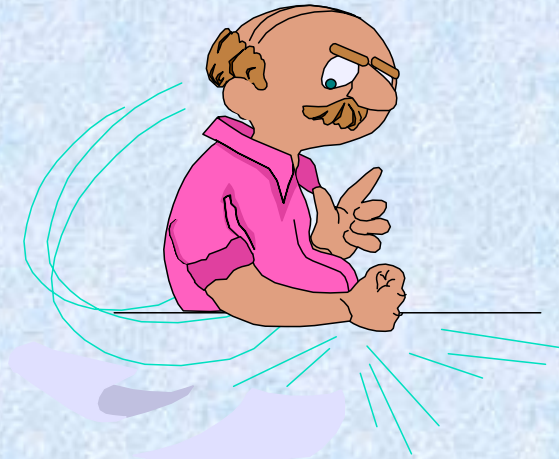




# ***ORDER NO. 96-04***

## ***General Waste Discharge Requirements Prohibiting Sanitary Sewer Overflows by Sewage Collection Agencies***

***→ 47 cities and special districts***



- Prohibition***
- Requirements***
- Reporting***
- Enforcement***

# ***SSO IMPACTS***

- **Public health risks**
  - *bacteria and viruses*
- **Environmental damage**
  - *low oxygen, toxics, high nitrogen and phosphorus*
- **Impairment of Beneficial Uses**
  - *Closure of recreational waters  
(beaches, lagoons, rivers)*
  - *Impact on aquatic habitats  
(marine, freshwater)*
  - *Contamination of water supplies  
(reservoirs, groundwater wells)*



# *PROHIBITION*

*“The discharge of sewage from a sanitary sewer system at any point upstream of a sewage treatment plant is prohibited.”*



# ***REQUIREMENTS***

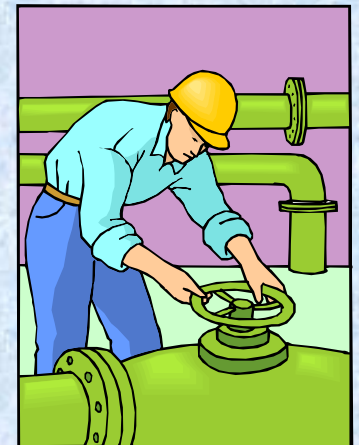
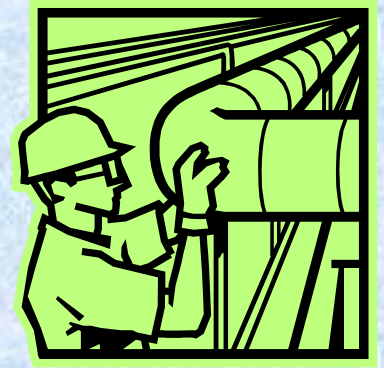
- ***Control, terminate, recover SSOs***
- ***Take corrective actions***
  - ***Monitor to determine nature and impact***
  - ***Minimize or correct adverse impact on the environment***
- ***Maintain SSO Prevention Plan***
- ***Maintain SSO Response Plan***
- ***Maintain records***
- ***Allow RWQCB inspections***



# SSO PREVENTION PLAN

Document designed to  
prevent SSOs and minimize potential

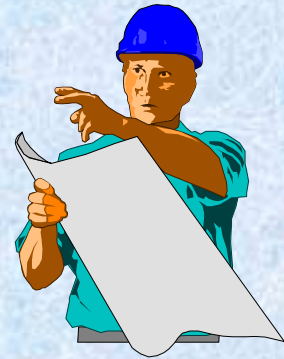
- *How could this spill have been prevented?*
- *Is it realistic? If not, why not?*
- *Any recurring trends?*
  - *Inspection schedules*
  - *Maintenance/cleaning schedules*
  - *Grease control program*
  - *System upgrades*
  - *Capacity assurance*



# ***SSO RESPONSE PLAN***

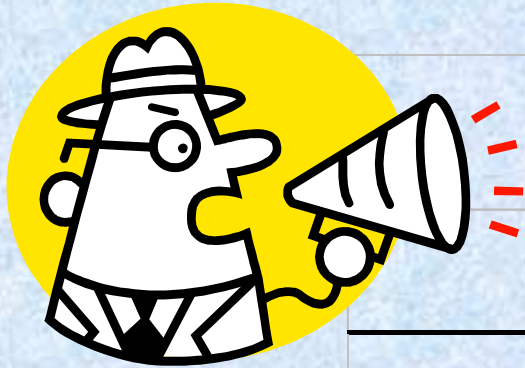
**Document designed to  
minimize SSO volume and minimize  
adverse effects**

- ▶ ***SSO detection (e.g., alarms, metering, citizen reports)***
- ▶ ***Response plan for all SSO scenarios***
- ▶ ***Clean-up and mitigation***
- ▶ ***Notification of public agencies***
- ▶ ***Posting plan for recreational waters***
- ▶ ***Environmental impact monitoring plan***





# REPORTING



	<b><i>Reaches surface waters</i></b>		<b><i>No surface water</i></b>	
	<i>Less than 1000 gal</i>	<i>1000 gal or more</i>	<i>Less than 1000 gal</i>	<i>1000 gal or more</i>
<b><i>24-hr report</i></b>	<b><i>Y</i></b>	<b><i>Y</i></b>	<b><i>N</i></b>	<b><i>Y</i></b>
<b><i>5-day written report</i></b>	<b><i>Y</i></b>	<b><i>Y</i></b>	<b><i>N</i></b>	<b><i>Y</i></b>
<b><i>Quarterly Electronic Report</i></b>	<b><i>Y</i></b>	<b><i>Y</i></b>	<b><i>Y</i></b>	<b><i>Y</i></b>

# Example of Monthly Executive Officer Summary Reports

SANITARY SEWER OVERFLOW STATISTICS (Updated through January 31, 2004)

SEWAGE COLLECTION AGENCY	SYSTEM SIZE <sup>B</sup>		NO. OF SEWAGE SPILLS (LISTED BY FISCAL YEAR (FY) - JULY 1 THROUGH JUNE 30)				SPILLS PER 100 MILES (LISTED BY FY)				SPILL VOLUME 2003-04 <sup>A</sup>	
	Miles	MGD	00-01	01-02	02-03	03-04 <sup>A</sup>	00-01	01-02	02-03	03-04 <sup>A</sup>	GAL	GAL/MG <sup>D</sup>
<b>ORANGE COUNTY:</b>												
EL TORO WD	55	2.2	0	3	1	3	0.0	5.5	1.8	5.5	1,468	3
EMERALD BAY SERVICE DISTRICT	6	0.1	1	0	0	0	16.7	0.0	0.0	0.0	0	0
IRVINE RANCH WD	36	2.0	1	0	0	0	2.8	0.0	0.0	0.0	0	0
LAGUNA BEACH, CITY OF	95	2.4	24	12	28	3	25.3	12.6	29.5	3.2	23	0
LOS ALISOS WD (absorbed by Irvine Ranch WD, January 2001)												
MOULTON NIGUEL WD	530	13.0	13	2	1	1	2.5	0.4	0.2	0.2	1,800	1
SAN CLEMENTE, CITY OF	179	4.5	9	6	7	3	5.0	3.3	3.9	1.7	17,526	18
SAN JUAN CAPISTRANO, CITY OF	100	3.4	1	0	0	0	1.0	0.0	0.0	0.0	0	0
SANTA MARGARITA WD	546	10.7	11	12	4	3	2.0	2.2	0.7	0.5	3,019	1
SOUTH COAST CWD	132	4.0	12	5	8	6	9.1	3.8	6.1	4.5	22,108	26
TRABUCO CANYON WD	43	0.7	0	0	0	1	0.0	0.0	0.0	2.3	5	0
<b>RIVERSIDE COUNTY:</b>												
EASTERN MWD	446	10.0	6	1	3	3	1.3	0.2	0.7	0.7	8,730	4
ELSINORE VALLEY MWD	80	2.0	1	0	0	0	1.3	0.0	0.0	0.0	0	0
MURRIETA MWD (included with Eastern MWD)												
RANCHO CA WD	71	2.9	0	2	0	0	0.0	2.8	0.0	0.0	0	0
<b>SAN DIEGO COUNTY:</b>												
BUENA SANITARY DISTRICT	84	1.9	0	0	2	0	0.0	0.0	2.4	0.0	0	0
CARLSBAD MWD	214	7.2	12	15	6	3	5.6	7.0	2.8	1.4	180	0
CHULA VISTA, CITY OF	400	16.0	7	6	3	4	1.8	1.5	0.8	1.0	2,960	1
CORONADO, CITY OF	53	3.8	11	5	2	0	20.8	9.4	3.8	0.0	0	0
DEL MAR, CITY OF	30	1.1	2	2	7	0	6.7	6.7	23.4	0.0	0	0
EL CAJON, CITY OF	198	9.1	3	2	3	0	1.5	1.0	1.5	0.0	0	0
ENCINITAS, CITY OF	118	4.1	4	2	6	0	3.4	1.7	5.1	0.0	0	0
ESCONDIDO, CITY OF	350	10.8	10	14	3	1	2.9	4.0	0.9	0.3	120	0

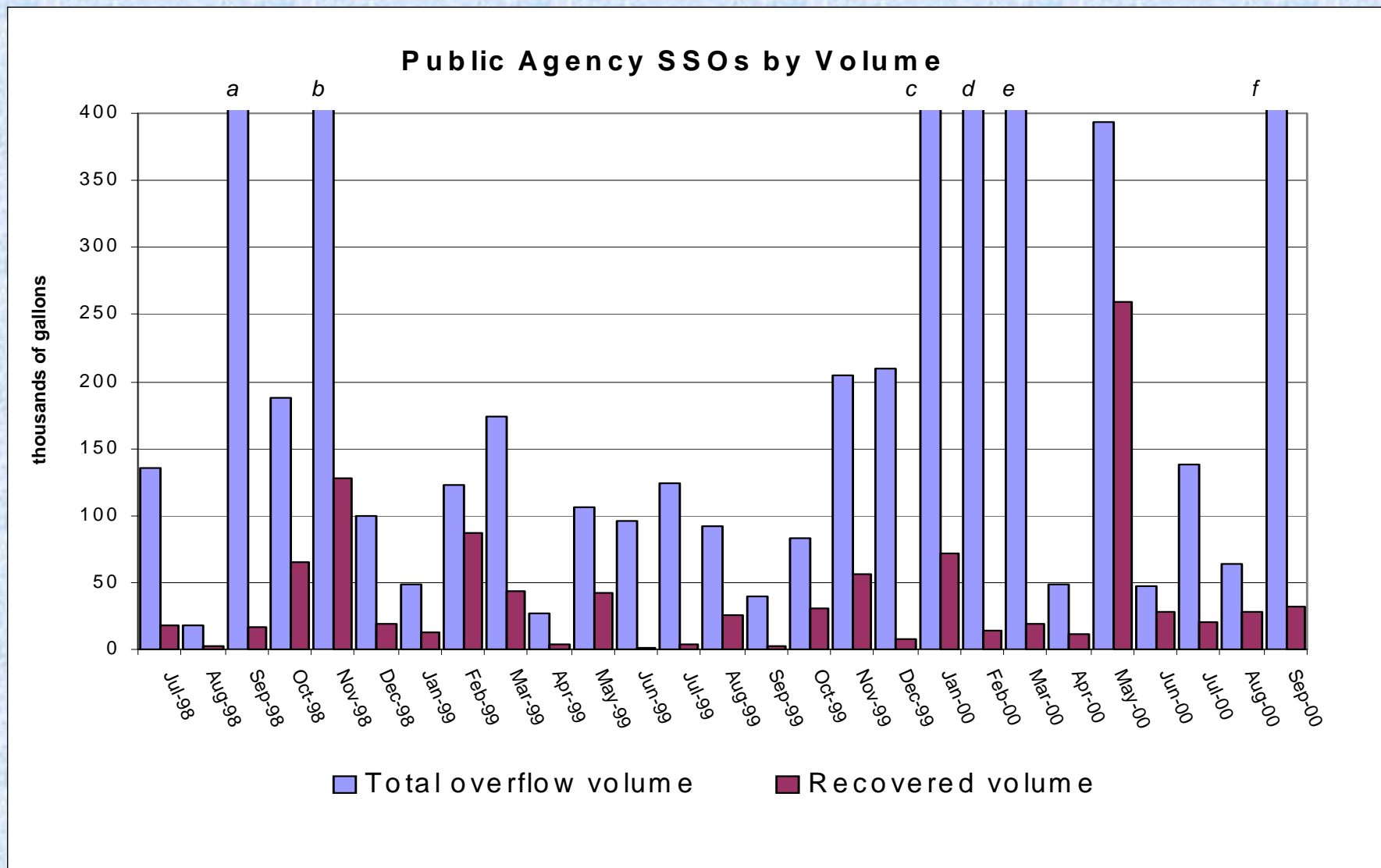


# Example of Periodic Sewer Agency Evaluations

## Public SSO Statistics Summary for FY 2002-2003 (July 1 - June 30)

<i>Sewer Agency (Sorted by County)</i>	<i>System Size (miles)<sup>1</sup> (mgd)<sup>2</sup></i>		<i>Total # of SSOs</i>	<i># SSO's per 100 mi</i>	<i>Total SSO Volume</i>	<i>Total Volume per Mgallon<sup>3</sup></i>	<i>Total Volume Recovered</i>	<i>Percent Recovered</i>
<i>Orange County</i>								
City of Laguna Beach	95	2.4	27	28.4	12,855	14.9	9,645	75%
City of San Clemente	179	4.5	7	3.9	4,540	2.8	3,165	70%
City of San Juan Capistrano	100	3.4	0	0.0				
El Toro Water District	55	2.2	1	1.8	850	1.0	250	29%
Emerald Bay Community Services District	6	0.1	0	0.0				
Irvine Ranch Water District	36	2.0	0	0.0				
Moulton Niguel Water District	530	13.0	1	0.2	300	0.1	300	100%
Santa Margarita Water District	546	10.7	4	0.7	1,680	0.4	760	45%
South Coast County Water District	132	4.0	8	6.1	2,755	1.9	1,260	46%
Trabuco Canyon Water District	43	0.7	0	0.0				
<i>Riverside County</i>								
Eastern Municipal Water District	446	10.0	3	0.7	35,050	9.6	18,700	53%
Elsinore Valley Municipal Water District	80	2.0	0	0.0				
Rancho California Water District	71	2.9	0	0.0				
<i>San Diego County</i>								
Buena Sanitary District	84	1.9	2	2.4	14,450	21.3	4,020	28%
Carlsbad Municipal Water District	214	7.2	6	2.8	7,415	2.8	1,075	14%
City of Chula Vista	400	16.0	3	0.8	7,950	1.4	7,600	96%
City of Coronado	53	3.8	2	3.8	550	0.4	550	100%
City of Del Mar	30	1.1	7	23.4	3,459	8.4	1,040	30%
City of El Cajon	198	9.1	4	2.0	430	0.1	0	0%
City of Encinitas	118	4.1	6	5.1	89,575	59.7	57,600	64%

## Example of Periodic Regional Trends Analysis





# ***ENFORCEMENT***

## ***Purpose***

- ***Address actual or threatened non-compliance***
- ***Bring violation to discharger's attention***
- ***Give discharger opportunity to correct violation***
- ***Deterrence***
- ***Polluters do not gain an economic advantage***
- ***Compensation for environmental damage***

# ***ENFORCEMENT***

## ***Degree of Violation***

- ***Loss of beneficial uses***
- ***Beach closures***
- ***Impacts to environment***
- ***Volume***
- ***Extenuating Circumstances***
  - ***multiple spills, same cause***
- ***Culpability of discharger***
- ***Discharger's compliance history***



# ***ENFORCEMENT***

## ***Types of Actions***

- ***Notice of Violation (NOV)***
- ***Request for Technical Information***
- ***Cleanup And Abatement Orders***
- ***Cease And Desist Orders***
- ***Referral to AG or DA***
- ***Administrative Civil Liabilities***

# *Maximum Civil Liability*

## *Water Code*

## *Liability*

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**13268(b)**

**\$1,000 per day**

**13308**

**\$10,000 per day**

**13350**

**\$10 per gallon, max \$5000 per day**

**13385**

**\$10,000 per day and  
\$10 per gallon**



# Enforcement Case 1     March 1998

## Allegations:

- *Stormwater surcharge into low-lying manhole, 200 gallon SSO*
- *Inadequate pump station capacity during storm event, 1200 gal SSO*

## Other Factors:

- *Beach closures, both SSOs*
- *Excessive inflow and infiltration*

## Clean-up and Abatement Order:

- *Cease threat of SSOs from section of pipe*
- *Plan and time schedule to improve the pipe line*
- *Increase pump station and pipeline reliability and capacity*
  - *Relief lines, raised manholes, rehab 2 pump stations, \$5 million CIP over 5 years*

# Enforcement Case 2      Jan-Feb 2000

## Allegations:

- *Locked manhole vandalism, 115K gallons to creek and lagoon, 7 hour spill*
- *Break in 18-inch force main, 1.7 million gallons to creek and lagoon*
- *Second break in 18-inch force main, 198K gallons to creek and lagoon*

## Other Factors:

- *No efforts to recover or redirect, Inadequate SSORP*
- *Lagoon impaired water body, 22 days lost beneficial uses, No fish kill*
- *“Overcurrent mode” alarm not investigated adequately, Continued force main use after corrosion report*

## Administrative Civil Liability:

***\$11,400, \$137,615, \$197,000 = \$346,015***



# Enforcement Case 3

September 2000

## Allegations:

- *Jan 1999- June 2000, 17 SSOs, 39,000 gallons total*
- *8 of 17 SSOs discharged to creeks and Pacific Ocean*

## Other Factors:

- *47 days lost beneficial use*
- *Due to roots and grease – preventable*
- *Impacts to impaired water bodies for excessive coliform*

**Administrative Civil Liability: \$83,360**

# Enforcement Case 4      February 2001

## Allegations:

- *Failure to maintain trunk sewer for 8 years despite SSOPP*
- *Failure to conduct required remote sewer line patrols*
- *Failure to properly handle public reports*
- *1.5 million gallon SSO to creek and bay*

## Other Factors:

- *Discharge to coliform- and eutrophication-impaired water body*
- *Flowrate drop not detected, 9 days undetected*
- *Beach closure and other beneficial use loss*

**Administrative Civil Liability: \$1.6 million**



# Enforcement Case 5

March 2003

## Allegations:

- *Failure to develop, implement, and maintain SSOPP*
- *Failure to submit complete SSO reports on 3 occasions*
- *Failure to report an SSO within 24-hours*

## Other Factors:

- *Repeated requests from RWQCB for SSOPP*
- *Occurrence of preventable SSOs*

## Administrative Civil Liability:

*\$50,000 and*

*\$55,000 for supplemental environmental projects*

# ***FINAL REMARKS***

- ***Goal is to achieve compliance with Order No. 96-04 and prevent SSOs***
- ***Sewer agencies have reduced SSOs***
- ***Importance of sewer agency efforts***



# *For more information*

- ***San Diego RWQCB, Order No. 96-04 ,SSOs***  
<http://www.swrcb.ca.gov/rwqcb9/Programs/SSO/sso.html>
- ***US EPA, SSO Rule, CMOM***  
<http://cfpub.epa.gov/npdes/sso/ssorule.cfm>
- ***San Diego RWQCB Contact***  
Victor Vasquez,  
(858) 636-3155, [vasqv@rb9.swrcb.ca.gov](mailto:vasqv@rb9.swrcb.ca.gov)